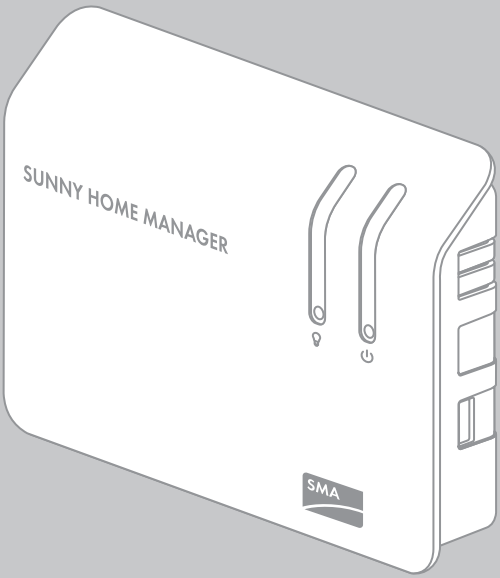
Device for PV Plant Monitoring and Load Management

SUNNY HOME MANAGER

Installation Manual



HoMan-IA-IEN121212 | Version 1.2

EN

Table of Contents

1 Information on this Manual 6

2 Safety 9

2.1 Intended Use 9

2.2 Qualification of Skilled Persons 11

2.3 Safety Instructions 12

3 Product Description 13

3.1 Sunny Home Manager 13

3.2 LEDs of the Sunny Home Manager 17

3.3 SMA Radio-controlled Socket 18

3.4 LED Display of the SMA Radio-controlled Socket 19

4 Scope of Delivery 21

4.1 Scope of Delivery of the Sunny Home Manager 21

4.2 Scope of Delivery of SMA Radio-controlled Socket 22

5 Preparing the Mounting and Commissioning of the Sunny Home Manager 23

6 Mounting 25

6.1 Requirements of the Mounting Location of the Sunny Home Manager 25

6.2 Requirement of the Mounting Location of the SMA Radio-controlled Socket 25

6.3 Checking the *Bluetooth* Connection at the Designated Mounting Location 26

6.4 Mounting the Sunny Home Manager 27

6.4.1 Mounting the Sunny Home Manager on the Wall 27

6.4.2 Mounting the Sunny Home Manager on the Top-hat Rail 27

7 Connection 28
7.1 Connection Area 28
7.2 Connecting Sunny Home Manager to Energy Meter 31
7.2.1 Connecting Sunny Home Manager to Energy Meter with D0 Interface 31
7.2.2 Connecting Sunny Home Manager to Energy Meter With S0 Interface 32
7.3 Connecting the Sunny Home Manager to the Router 33
7.4 Supplying the Sunny Home Manager With Voltage 34
7.4.1 Supplying the Sunny Home Manager With Voltage via the Plug-in Power Supply 34
7.4.2 Supplying the Sunny Home Manager With Voltage via the Top-hat Rail Power Supply 34

8 Commissioning 37
8.1 Preparing *Bluetooth* Communication 37
8.1.1 Configuring the NetID on the Sunny Home Manager 37
8.1.2 Configuring the NetID on the SMA Radio-controlled Socket 38
8.2 Establishing Connection to the Sunny Portal 38
8.3 Registering in the Sunny Portal 39
8.4 Configuring the Operating Mode of the SMA Radio-controlled Socket 44

9 Troubleshooting 46
9.1 Error in the Sunny Home Manager 46
9.1.1 States of all LEDs 46
9.1.2 States of the Status LED 46
9.1.3 States of the *Bluetooth* LED 49
9.2 Error in the SMA Radio-controlled Socket 50
9.3 Error During Registration to Sunny Portal 51
9.4 Using Sunny Home Manager Assistant 56
9.5 Error in the Sunny Home Manager Assistant 56

9.6 Resetting the Sunny Home Manager 57
9.7 Reassigning the Sunny Home Manager Plant After Resetting the Sunny Home Manager 58
9.8 Resetting the SMA Radio-controlled Socket to Default Settings 59

10 Decommissioning 60
10.1 Disassembling the Sunny Home Manager 60
10.2 Packing the Sunny Home Manager/SMA Radio-controlled Socket for Dispatch 61
10.3 Disposal of the Sunny Home Manager/SMA Radio-controlled Socket 61

11 Technical Data 62
11.1 Sunny Home Manager 62
11.2 SMA Radio-controlled Socket 64
11.3 Plug-in Power Supplies 65
11.3.1 TaiyTech, TYT251200200UV/3000M 65
11.3.2 TaiyTech, TYT251200200EU/3000M 66
11.3.3 CINCON, TRG30R 120 66

12 Accessories 67

13 Software Licenses 68

14 Contact 69

1 Information on this Manual

Validity

This manual applies to the following devices:

- HM-BT-10.GR1 from firmware version 1.00.0.R
- BT-SOCKET-10 from firmware version 1.00.0.R

Target Group

This manual is intended for skilled workers. Only persons with corresponding skills are allowed to perform the tasks set forth in this manual (see section 2.2 "Qualification of Skilled Persons", page 11).

Additional Information

Additional information is available at www.SMA.de/en:

Document Title	Document Type
SMA *Bluetooth* – SMA *Bluetooth*® Wireless Technology in practice	Technical Information
SMA *Bluetooth*® Wireless Technology	Technical Description

Symbols

Symbol	Explanation
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a situation that can result in property damage if not avoided.
i	Indicates information that is important for a specific topic or objective, but is not safety-relevant.
☐	Indicates a requirement for meeting a specific goal.
☑	Desired result.
✖	A problem that could occur.

Typography

Typography	Usage	Example
"light"	• Inverter display messages • Elements in a software user interface • Terminals	• The value can be read in the "Energy" field.
bold	• Elements that are to be selected	• Enter **10** in the "Minutes" field.
>	• Several elements that are to be selected	• Select **Settings > Date**.
[Button/key]	• Button or key to be selected or pressed	• Select [Next].

Nomenclature

The following nomenclature is used in this manual:

Complete designation	Short form in the manual
SMA *Bluetooth*® Piggy-Back, SMA *Bluetooth*® Piggy-Back Plus	*Bluetooth* Piggy-Back
SMA *Bluetooth*® Piggy-Back Offgrid	*Bluetooth* Piggy-Back Offgrid
SMA *Bluetooth*® Repeater, SMA *Bluetooth*® Repeater Outdoor	*Bluetooth* Repeater
Sunny WebBox, Sunny WebBox with *Bluetooth*® Wireless Technology	Sunny WebBox
SMA *Bluetooth*® Wireless Technology	*Bluetooth*
SMA radio-controlled socket with *Bluetooth*® Wireless Technology	SMA radio-controlled socket

Abbreviations

Abbreviations	Description	Explanation
DHCP	Dynamic Host Configuration Protocol	Dynamic assignment of IP addresses
IP	Internet Protocol	-
LED	Light-Emitting Diode	-
NetID	Network Identification	Identification number for SMA *Bluetooth* network
MSL	Mean Sea Level	-
PV	Photovoltaics	-
WLAN	Wireless Local Area Network	-
PUK	Personal Unlocking Key	Code number, which enables access to SMA *Bluetooth* devices, after the loss of the password

2 Safety

2.1 Intended Use

Sunny Home Manager

The Sunny Home Manager is a device for monitoring PV plants and for managing loads in households with PV plants. For this purpose, the Sunny Home Manager carries out the following tasks:

- Reading out energy meter data and data from SMA inverters with *Bluetooth* communication interfaces
- Sending data to the Sunny Portal
- Providing support in increasing the self-consumption rate

The Sunny Home Manager is not splash-proof.

- Only use the Sunny Home Manager indoors.

Additional information for France

In France, outdoor use of the Sunny Home Manager is forbidden due to the legal restrictions regarding *Bluetooth* transmitting power.

The Sunny Home Manager must only be used with supported devices.

It is not permitted to convert the Sunny Home Manager or install component parts.

Only use the Sunny Home Manager in accordance with the information provided in the enclosed documentation. Any other use can result in personal injury or property damage.

- Do not use the Sunny Home Manager in plants including a Sunny WebBox.

The enclosed documentation is a part of this product.

- Read and observe the documentation.
- Keep the documentation in a convenient place for future reference.

Supported devices

The Sunny Home Manager supports a maximum of 16 *Bluetooth* devices. Of the 16 devices, the Sunny Home Manager supports a maximum of 12 SMA inverters or a maximum of 10 SMA radio-controlled sockets.

SMA devices	Devices from other manufacturers
Inverters: • Sunny Boy (SB): – From software package 2.06: SB 3000TL-20, SB 4000TL-20, SB 5000TL-20 – SB 3000TL-21, SB 4000TL-21, SB 5000TL-21 – SB 2000HF, SB 2500HF, SB 3000HF • Sunny Tripower (STP): – STP 8000TL-10, STP 10000TL-10, STP 12000TL-10, STP 15000TL-10, STP 17000TL-10 • Inverters with *Bluetooth* Piggy-Back or *Bluetooth* Piggy-Back Offgrid* **Other devices:** • SMA radio-controlled socket • SMA *Bluetooth* Repeater • SMA *Bluetooth* Repeater Outdoor • Sunny SensorBox with SMA Power Injector with *Bluetooth*.	**Energy meter:** The Sunny Home Manager supports the following energy meter types: • Energy meter with S0 interface:** Bidirectional meters with S0 interface must use 2 S0 interfaces. • Energy meter with D0 interface:*** A list of the supported energy meters with D0 interface can be found at www.SMA.de/en. Recommended solution: • At least 10 Wh Recommended pulse length: • At least 20 ms **Router:** SMA Solar Technology AG recommends the use of a router that supports DHCP.

* A list of these inverters can be found in the manual of the corresponding *Bluetooth* Piggy-Back or the *Bluetooth* Piggy-Back Offgrid.

** S0 interface according to DIN EN 62053-31 class A

*** D0 interface according to IEC 62056-21, part 4.3

SMA radio-controlled socket

The SMA radio-controlled socket supports load management in households with Sunny Home Manager. For this purpose, the SMA radio-controlled socket carries out the following tasks:

- Converting control commands of Sunny Home Manager
- Measuring the energy consumption of the connected electrical load
- Improving the wireless connection between *Bluetooth* devices

The SMA radio-controlled socket is not splash-proof.

- Only use the SMA radio-controlled socket indoors.

Additional information for France

In France, outdoor use of the SMA radio-controlled socket is forbidden due to the legal restrictions regarding *Bluetooth* transmitting power.

It is not permitted to convert the SMA radio-controlled socket or install component parts, as the conversion or the installation of component parts can lead to property damage or injury.

Only use the SMA radio-controlled socket in accordance with the information provided in the enclosed documentation. Any other use can result in personal injury or property damage.

- Do not connect any medical devices to the SMA radio-controlled socket.
- Do not connect any loads to the SMA radio-controlled socket that require a continuous supply of current (e.g. refrigerator, freezer).
- Do not connect any loads to the SMA radio-controlled socket that can cause injuries or fires if unintentionally switched on (e.g. iron).
- Only connect loads to the SMA radio-controlled socket that are suitable for the voltage and power range of the SMA radio-controlled socket (see section 11.2 "SMA Radio-controlled Socket", page 64).
- Only connect the SMA radio-controlled socket to socket-outlets with a protective contact in standard installation.

The enclosed documentation is a part of this product.

- Read and observe the documentation.
- Keep the documentation in a convenient place for future reference.

2.2 Qualification of Skilled Persons

The tasks described in this manual are intended for skilled persons only. Skilled persons must have the following qualifications:

- Training in the installation and commissioning of electrical devices.
- Knowledge of all applicable standards and guidelines.

2.3 Safety Instructions

Sunny Home Manager

Risk of lethal electric shock

Lethal voltages are present at the conductive parts inside the plug-in power supply and at the conductive parts of the top-hat rail power supply.

- Only use the Sunny Home Manager indoors and in a dry environment, keeping it away from liquids.
- Do not open the plug-in power supply.

Risk of injury due to incorrect cable routing

Incorrectly routed cables can cause injuries due to tripping.

- Route the cables in such a way that no one can stand on or trip over them.

Damage to the Sunny Home Manager due to moisture penetration

The Sunny Home Manager is not splash-proof.

- Only use the Sunny Home Manager indoors and in a dry environment.

SMA radio-controlled socket

Risk of lethal electric shock

Lethal voltages are present at the conductive component parts.

- Only use the SMA radio-controlled socket indoors and in a dry environment (e.g. not in damp rooms) and keep away from liquids.
- Only insert suitable plugs into the SMA radio-controlled socket.
- Unplug the SMA radio-controlled socket from the socket-outlet prior to cleaning and only clean with a dry cloth.

Risk of injury and fire due to unintentional and unattended switching on of loads

Loads that are subject to unintentional and unattended switching on via an SMA radio-controlled socket can cause injuries and fires (e.g. iron).

- Do not connect any loads to the SMA radio-controlled socket that endanger persons or can cause damage in the event of unintentional switching on.

3 Product Description

3.1 Sunny Home Manager

The Sunny Home Manager is a device for monitoring PV plants and for managing loads in households with PV plants. For this purpose, the Sunny Home Manager carries out the following tasks:

- Reading out energy meter data and data from *Bluetooth* devices
- Sending data to the Sunny Portal
- Providing support in increasing the self-consumption rate

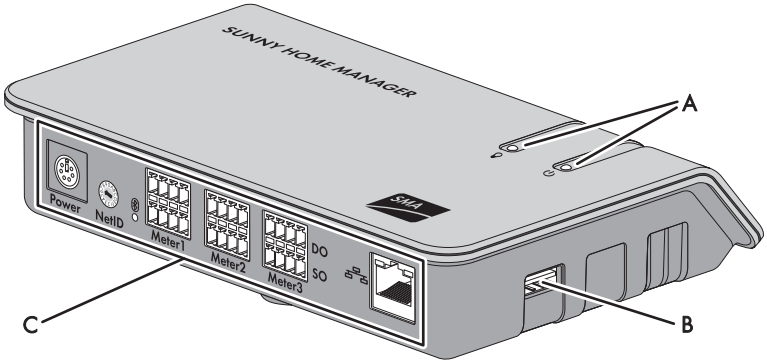


Figure 1: Sunny Home Manager

Position	Designation
A	Status LED and energy consumption LED
B	USB port*
C	Connection area with *Bluetooth* LED

* The USB ports on the right and left sides of the enclosure do not currently have a function.

Reading out energy meter data and data from *Bluetooth* devices

The Sunny Home Manager reads the data of the connected energy meter and *Bluetooth* devices. The Sunny Home Manager establishes the connection to the *Bluetooth* devices wirelessly via *Bluetooth*. The Sunny Home Manager is connected to the energy meters via cables.

Sending data to the Sunny Portal

The Sunny Portal is the user interface of the Sunny Home Manager. The Sunny Home Manager sends the data read out to the Sunny Portal. The Sunny Home Manager establishes the connection to the Sunny Portal via a router.

Providing support in increasing the self-consumption rate

Self-consumption means the consumption of PV power produced at the site of your generation.

In every household, there is "natural" self-consumption as electrical loads are operated while PV power is produced (e.g. oven) and because certain electrical loads consume current continuously (e.g. refrigerator, devices in standby mode). If the PV plant produces a lot of PV power, it is possible that only a part of the PV power will be self-consumed. The residual PV power is fed into the power distribution grid.

A higher self-consumption rate can be achieved if electrical loads are specifically switched on when residual PV power is available.

The following functions of the Sunny Home Manager make it possible to increase the self-consumption rate:

Function	Explanation
Creating a generation prognosis	The Sunny Home Manager receives location-based weather forecasts via the internet and uses them to create generation prognoses for the PV plant.
Creating a load profile	The Sunny Home Manager detects how much energy is typically consumed at certain times in a household and uses this to create a load profile of the household. To create the load profile, the following energy meters must be connected to the Sunny Home Manager: • Feed-in meter and consumption meter **or** Bidirectional meter for grid feed-in and purchased electricity
Controlling SMA radio-controlled sockets	Specific electrical loads connected to SMA radio-controlled sockets can be switched on and off by the Sunny Home Manager. For this purpose, the Sunny Home Manager uses the generation prognosis and the load profile to determine favorable points in time for increasing the self-consumption rate.
Sending energy meter data to Sunny Backup systems	If a *Bluetooth* Piggy-Back Offgrid is installed in the Sunny Backup, the Sunny Home Manager can send the energy meter data to the Sunny Backup system. At a suitable point in time, the Sunny Backup activates the charge of electric discharge of the batteries: • If residual PV power is available, this is stored in the batteries. • If no PV power is available, the Sunny Backup activates the electric discharge of the batteries and the energy can be used.

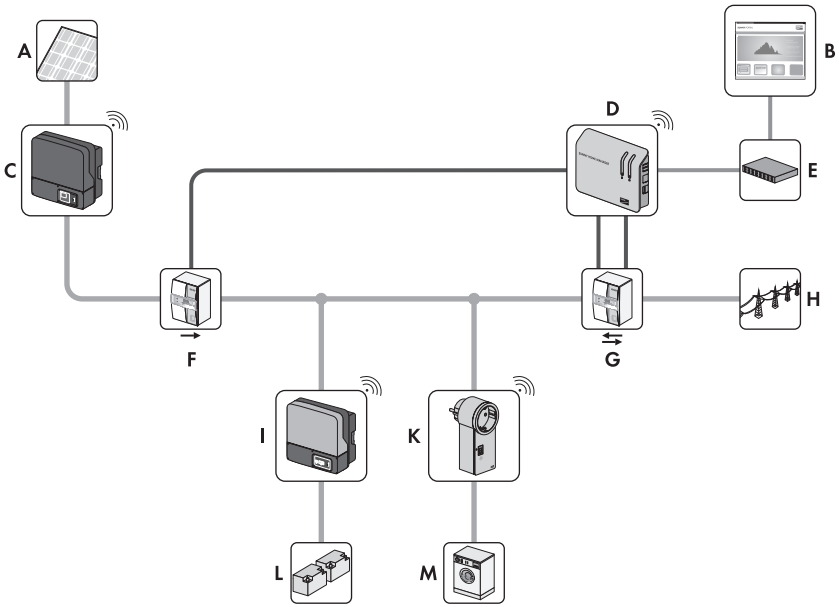


Figure 2: PV plant with Sunny Home Manager (Example)

Position	Designation
A	PV modules
B	Sunny Portal
C	PV inverter
D	Sunny Home Manager
E	Router
F	PV production meter
G	Feed-in meter and consumption meter or bidirectional meter for grid feed-in and purchased electricity
H	Power distribution grid
I	Sunny Backup
K	SMA radio-controlled socket
L	Battery
M	Electrical load

System requirements

Operating systems supported by the Sunny Home Manager Assistant:

- Microsoft Windows 7
- Microsoft Windows Vista
- Microsoft Windows XP Service Pack 2
- Linux with kernel from version 2.6.12, KDE, with Oracle Java Runtime Environment from version 6
- MAC OS from version 10.6, with Java Runtime Environment from version 6

Internet access requirements:

- Permanent internet access. Recommended: DSL access with flat rate

Supported web browsers:

- Google Chrome from version 14.0
- Microsoft Internet Explorer from version 8
- Mozilla Firefox from version 5
- Opera from version 11.0
- Safari from version 5.0

Recommended screen resolution:

- Minimum 1024 pixels x 768 pixels

Energy meter:

SMA Solar Technology AG recommends connecting at least the following energy meter types to the Sunny Home Manager:

- Feed-in meter and consumption meter

  or

- Bidirectional meter for grid feed-in and purchased electricity

Type label

You can identify the Sunny Home Manager using the type label. The type label can be found on the rear of the Sunny Home Manager. You can read out the following data from the type label:

- Serial number
- Registration ID
- Assembly name
- Hardware version

3.2 LEDs of the Sunny Home Manager

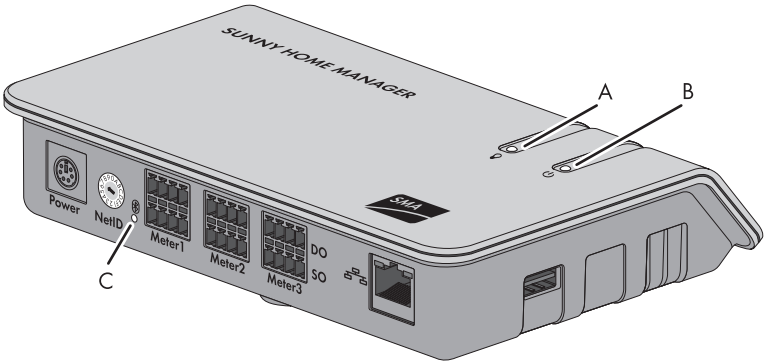


Figure 3: LEDs of the Sunny Home Manager

Position	Designation	Explanation
A	Energy consumption LED	Displays the momentary current consumption.
B	Status LED	Displays the current status of the Sunny Home Manager.
C	*Bluetooth* LED	Displays the status of the *Bluetooth* connection.

Energy consumption LED

The energy consumption LED is only active when either the bidirectional meter for grid feed-in and purchased electricity or the feed-in meter and the consumption meter are connected.

LED Status	Explanation
Glows green	The household only receives energy from the PV plant.
Flashing green and orange intermittently	The household receives energy from the PV plant and from the power distribution grid.
Glows orange	The household only receives current from the power distribution grid.

Status LED

LED Status	Explanation
Glows green	The Sunny Home Manager is connected to the *Bluetooth* devices and the Sunny Portal.

Further states of the status LED are described in the section "Troubleshooting" (see section 9.1.2 "States of the Status LED", page 46).

Bluetooth LED

LED Status	Explanation
Glows blue	The *Bluetooth* connection to the devices of the PV plant is good.

Further states of the *Bluetooth* LED are described in the section "Troubleshooting"
(see section 9.1.3 "States of the Bluetooth LED", page 49).

3.3 SMA Radio-controlled Socket

The SMA radio-controlled socket supports load management in households with Sunny Home Manager. For this purpose, the SMA radio-controlled socket carries out the following tasks:

- Converting control commands of Sunny Home Manager
- Measuring the energy consumption of the connected electrical load
- Improving the wireless connection between *Bluetooth* devices

Converting control commands of Sunny Home Manager

The Sunny Home Manager can switch the SMA radio-controlled socket on and off. As a result, specific electrical devices can be switched on if e.g. a lot of PV power is available.

The points in time at which the Sunny Home Manager switches the radio-controlled socket on or off depends on the configuration of the SMA radio-controlled socket
(see user manual "Sunny Home Manager in the Sunny Portal").

Measuring the energy consumption of the connected electrical load

The SMA radio-controlled socket measures the energy consumption of the connected electrical loads.

Improving the wireless connection between *Bluetooth* devices

If the distance between *Bluetooth* devices is too great or obstructions interfere with the *Bluetooth* connection, the SMA radio-controlled socket can be used as a repeater. As a result, the dead zone is closed.

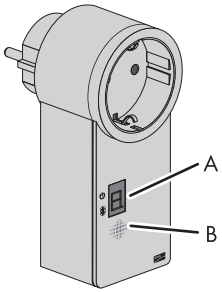


Figure 4: SMA radio-controlled socket

Position	Designation	Explanation
A	LED display	• Displays status, operating modes, and NetIDs.
B	Touch key	• Operation of the SMA radio-controlled socket

Type label

You can identify the SMA radio-controlled socket using the type label. The type label can be found on the rear of the SMA radio-controlled socket. You can read out the following data from the type label:

- Serial number
- Assembly name
- Hardware version

3.4 LED Display of the SMA Radio-controlled Socket

Upper horizontal LED

Figure 5: Upper horizontal LED of the LED display

LED Status	Operating Mode/Status of the SMA Radio-controlled Socket
Glows green	"Manually switched on". SMA radio-controlled socket not controlled by the Sunny Home Manager.
Glows orange	"Manually switched off". SMA radio-controlled socket not controlled by the Sunny Home Manager.
Flashes green	"Automatically switched on". SMA radio-controlled socket controlled by the Sunny Home Manager.
Flashes orange	"Automatically switched off". SMA radio-controlled socket controlled by the Sunny Home Manager.
Glows red	System starts. **or** Update process runs. In this status, do not unplug the SMA radio-controlled socket from the socket-outlet. Otherwise, the SMA radio-controlled socket could be damaged.

Lower horizontal LED

Figure 6: Lower horizontal LED of the LED display

LED Status	Explanation
Glows blue	The *Bluetooth* connection to the Sunny Home Manager is good.

Further states of the lower horizontal LED are described in the section "Troubleshooting" (see section 9.2 "Error in the SMA Radio-controlled Socket", page 50).

Vertical LEDs

Figure 7: Vertical LEDs of the LED display

LED Status	Operating Mode/Status of the SMA Radio-controlled Socket
Glows green	The touch key is ready for operation. In this status, the SMA radio-controlled socket can be reset to the default settings (see section 9.8 "Resetting the SMA Radio-controlled Socket to Default Settings", page 59).
Flashes green	The SMA radio-controlled socket is initialized.

All LEDs of the LED display

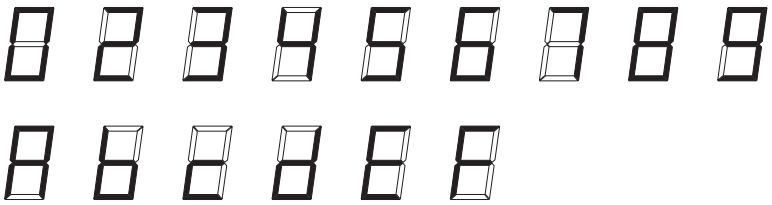


Figure 8: Display of the NetIDs

LED Status	Operating Mode/Status of the SMA Radio-controlled Socket
0, 2 ... 9 and A ... F	NetID configuration mode and display of the configured NetID

4 Scope of Delivery

4.1 Scope of Delivery of the Sunny Home Manager

Check the delivery for completeness and any visible external damage. Please contact your specialty retailer if the scope of supply is not complete or you find any damage.

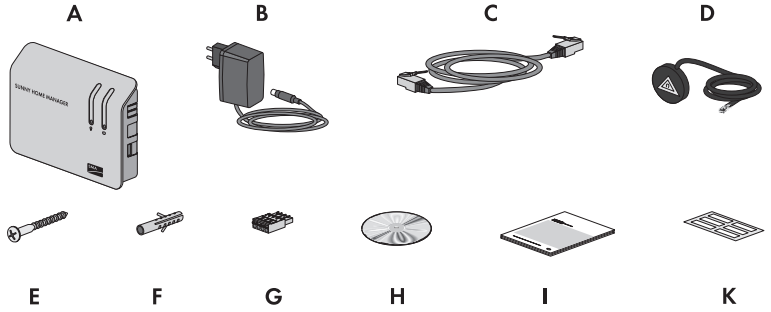


Figure 9: Components included in delivery

Position	Quantity	Designation
A	1	Sunny Home Manager
B	1	Plug-in power supply
C	1	Network cable
D	0 ... 2*	Cable with optical reading head and 4-pole plug***
E	2	Screw
F	2	Screw anchor
G	1 ... 3**	4-pole plug
H	1	CD with installation manual, user manual, Sunny Home Manager Assistant
I	1	Quick reference guide for commissioning
K	6	Sticker

* Quantity dependent on order

** Quantity dependent on the quantity of ordered cables with optical reading head and 4-pole plug

*** Optional

4.2 Scope of Delivery of SMA Radio-controlled Socket

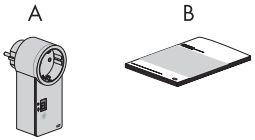


Figure 10: Components included in delivery

Position	Quantity	Designation
A	1	SMA radio-controlled socket
B	1	User Manual

5 Preparing the Mounting and Commissioning of the Sunny Home Manager

1. **NOTICE**

   Damage to the Sunny Home Manager due to condensation water

   If the Sunny Home Manager is taken from a cold environment into a warm environment, condensation water may form in the Sunny Home Manager.

   - In the event of large temperature differences, only supply the Sunny Home Manager with voltage once the Sunny Home Manager has reached room temperature.

2. If another plant with *Bluetooth* is located within 500 m of your plant, detect a free NetID at the planned mounting location of every *Bluetooth* device.

   Requirement for detecting a free NetID

   You can only detect a free NetID using a computer with integrated *Bluetooth* or with *Bluetooth* stick (*Bluetooth* class 1) and the software Sunny Explorer (see Sunny Explorer help). You can obtain the Sunny Explorer for free in the download area of www.SMA.de/en.

3. With the exception of the Sunny Home Manager and the SMA radio-controlled socket, configure the same NetID for all *Bluetooth* devices. For this purpose, configure a NetID from 1 ... 9 or A ... F (see manual of the *Bluetooth* devices or the *Bluetooth* Piggy-Back).

   Requirement for configuring NetID 1

   For *Bluetooth* devices, NetID 1 is preset at the factory. You may only configure NetID 1 if your *Bluetooth* PV plant consists of a maximum of one inverter and one Sunny Home Manager.

   - If the PV plant consists of more *Bluetooth* devices than one inverter and one Sunny Home Manager, configure a different NetID as NetID 1.

4. Note down the serial numbers of the Sunny Home Manager and all other *Bluetooth* devices. For the SMA radio-controlled sockets, also note down the load that you wish to allocate to the respective radio-controlled socket.

5. Note down the registration ID of the Sunny Home Manager.

Reading out the serial number and registration ID

You can read out the serial number and the registration ID of the Sunny Home Manager at the following locations:

- On the type label on the rear of the Sunny Home Manager
- On the cover of the supplied CD

6. With the exception of the Sunny Home Manager and the SMA radio-controlled socket, commission all *Bluetooth* devices (see manual of the inverters and the *Bluetooth* devices).

6 Mounting

6.1 Requirements of the Mounting Location of the Sunny Home Manager

- ☐ The mounting location is indoors.
- ☐ The mounting location is protected against dust, moisture, and corrosive substances.
- ☐ The cable route from the mounting location to the router is a maximum of 100 m in length.
- ☐ The cable route from the mounting location of the Sunny Home Manager to the energy meters with D0 interface is a maximum of 15 m in length.
- ☐ The cable route from the mounting location of the Sunny Home Manager to the energy meters with S0 interface is a maximum of 30 m in length.
- ☐ The distance to devices that use the 2.4 GHz frequency band (e.g. WLAN devices, microwaves), must be at least 1 m. As a result, you avoid reductions in the connection quality and the data transmission speed.
- ☐ The Sunny Home Manager does not have radio shielding (e.g. in a metal cabinet).

Minimum clearances:

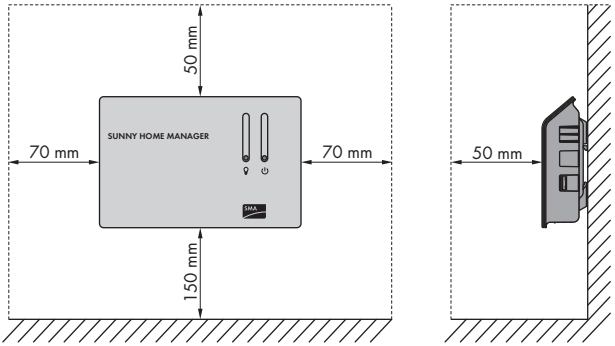


Figure 11: Minimum clearances

- Observe minimum clearances to walls, other communication products, inverters, or objects.

6.2 Requirement of the Mounting Location of the SMA Radio-controlled Socket

- ☐ The distance to devices that use the 2.4 GHz frequency band (e.g. WLAN devices, microwaves), must be at least 1 m. As a result, you avoid reductions in the connection quality and the data transmission speed.

6.3 Checking the *Bluetooth* Connection at the Designated Mounting Location

Requirements:

☐ The same NetID is configured for all *Bluetooth* devices (see section 5 "Preparing the Mounting and Commissioning of the Sunny Home Manager", page 23).

☐ With the exception of the Sunny Home Manager and the SMA radio-controlled socket, the *Bluetooth* PV plant is commissioned (see section 8.1 "Preparing Bluetooth Communication", page 37).

1. Configure the NetID of the PV plant on the Sunny Home Manager (see section 8.1.1 "Configuring the NetID on the Sunny Home Manager", page 37).
2. Supply the Sunny Home Manager with voltage via the plug-in power supply (see section 7.4.1).

   ☑ After approx. 2 minutes, the *Bluetooth* LED glows blue. The connection to the *Bluetooth* devices is good.

   ✖ Is the *Bluetooth* LED flashing blue?

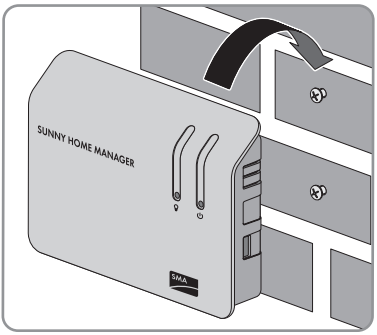
   The *Bluetooth* connection is critical.

   - If possible, select a different mounting location and check the connection.
   - If no other mounting location is possible, use a *Bluetooth* repeater or an SMA radio-controlled socket. As a result, you can extend the wireless range of your *Bluetooth* network.
3. Unplug the plug-in power supply from the socket-outlet.
4. Unplug the DC plug of the plug-in power supply from the "Power" terminal of the Sunny Home Manager.

6.4 Mounting the Sunny Home Manager

6.4.1 Mounting the Sunny Home Manager on the Wall

1. Determine the location of the Sunny Home Manager on the wall.
2. Mark the position of the drill holes on the wall (distance of drill holes: 58 mm).
3. Drill the holes (diameter: 6 mm).
4. Insert the screw anchors into the holes.
5. Screw in the screws and leave approx. 6 mm protruding from the wall.
6. Hang the Sunny Home Manager on the screws. In the process, ensure that the heads of the screws are engaged in the holes on the rear of the Sunny Home Manager.

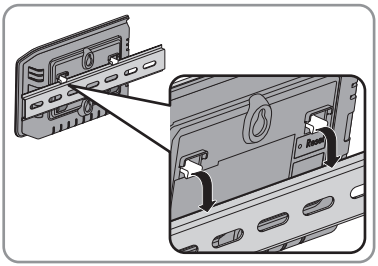


6.4.2 Mounting the Sunny Home Manager on the Top-hat Rail

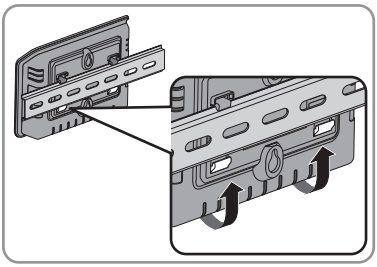
Requirement:

☐ The top-hat rail is securely mounted on the wall.

1. Press the Sunny Home Manager with the upper retainers into the upper edge of the top-hat rail.



2. Hook the lower retainers into the lower edge of the top-hat rail.



7 Connection

7.1 Connection Area

Lower enclosure side

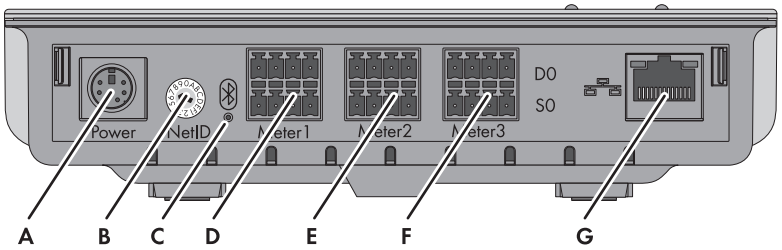


Figure 12: Terminals on lower enclosure side

Position	Designation	Explanation
A	"Power"	Connection socket for plug-in power supply
B	"NetID"	Rotary switch for configuring the NetID
C	*Bluetooth* LED	Status display of *Bluetooth* connection
D	"Meter 1"	Connection socket for: • 1 consumption meter with D0 or S0 interface or • 1 bidirectional meter with D0 interface for grid feed-in and purchased electricity
E	"Meter 2"	Connection socket for 1 feed-in meter with D0 or S0 interface*
F	"Meter 3"	Connection socket for 1 PV production meter with D0 or S0 interface
G	Ethernet connection	RJ45 connection socket for the network cable

* When connecting a bidirectional meter to the connection socket "Meter 1", the connection socket "Meter 2" does not have a function.

Right enclosure side

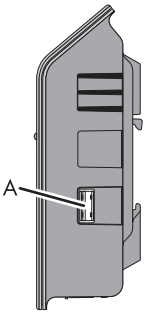


Figure 13: Terminal on the right enclosure side

Position	Designation	Explanation
A	USB port	Currently without function.

Left enclosure side

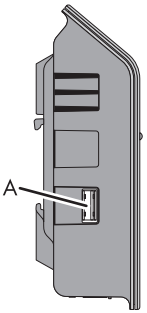


Figure 14: Terminal on the left enclosure side

Position	Designation	Explanation
A	USB port	Currently without function.

Pin assignment of the connection sockets

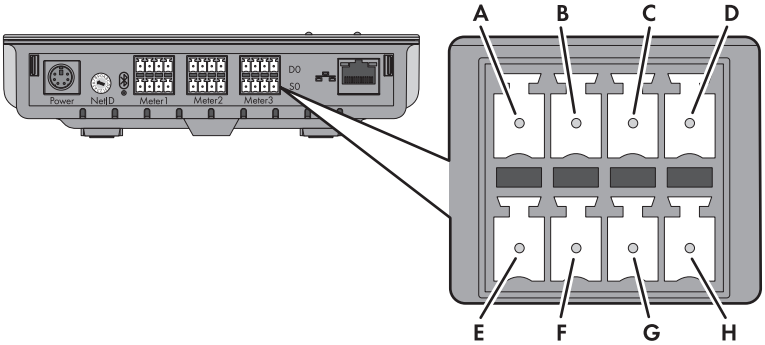


Figure 15: Pin assignment of the connection sockets on the lower enclosure side of the Sunny Home Manager

Upper pin row for D0:

Pin	Signal	Specification	Description
A	GND	Voltage supply	Ground
B	TX	Transmitter output	Transmit D0
C	RX	Receiver input	Receive D0
D	VCC_D0, +8 volt	Voltage supply output	Voltage supply for the optical reading head

Lower pin row for S0:

Pin	Signal	Specification	Description
E	S0-	Input and output	S0 signal
F	S0+	Input and output	S0 signal
G	GND	Voltage supply	Ground of the external voltage supply for voltage supply via top-hat rail power supply
H	+12 volt, DC	Voltage supply input	External voltage supply for voltage supply via top-hat rail power supply

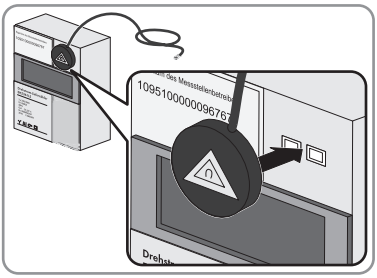
7.2 Connecting Sunny Home Manager to Energy Meter

7.2.1 Connecting Sunny Home Manager to Energy Meter with D0 Interface

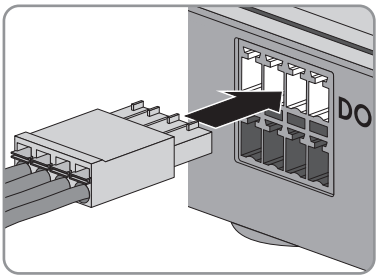
Additional required material (not included in scope of delivery):

☐ Cable with reading head and 4-pole plug (see section 11.3.3 "CINCON, TRG30R 120", page 66).

1. Place the magnet retainer of the reading head on the upper right of the front side of the energy meter. For this purpose, the infrared interfaces on the reading head and the energy meter must rest of top of one another.



2. Connect the plug of the reading head to the connection socket to which the corresponding energy meter is allocated. For this purpose, insert the 4-pole plug into the upper pin row:
   - For consumption meters, insert the 4-pole plug into the connection socket "Meter 1".
   - For feed-in meters, insert the 4-pole plug into the connection socket "Meter 2".
   - For PV production meters, insert the 4-pole plug into the connection socket "Meter 3".
   - For bidirectional meters for grid feed-in and purchased electricity, insert the 4-pole plug into the connection socket "Meter 1".



3. Use the stickers provided on every cable to identify which connection socket and which energy meter the cable is assigned to.

7.2.2 Connecting Sunny Home Manager to Energy Meter With S0 Interface

Additional required material (not included in scope of delivery):

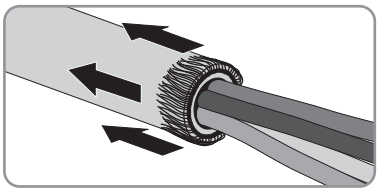
☐ A cable with at least two insulated conductors

Cable requirements:

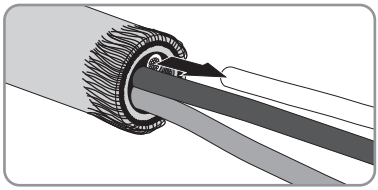
☐ Core cross-section: 0.2 mm^2 ... 1.5 mm^2

☐ Maximum cable length: 30 m

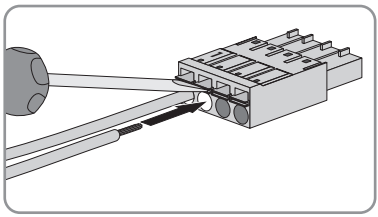
1. Remove 4 cm of cable sleeve.
2. Shorten the cable shield to approx. 5 mm. For this purpose, transfer the surplus cable shield onto the cable sleeve.



3. Shorten unused insulated conductors until flush with the cable sleeve.

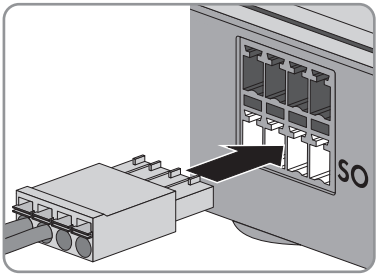


4. Strip approx. 6 mm of insulation off the insulated conductors.
5. Unlock the jacks of the 4-pole plug with a screwdriver. For this purpose, insert the insulated conductors into pins 1 and 2 of the 4-pole plug.



6. Write down the color of the insulated conductors.

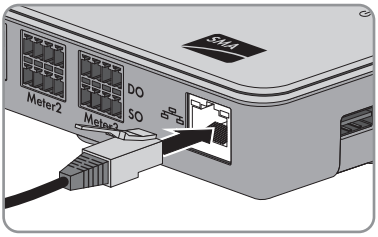
7. Connect the 4-pole plug to the connection socket to which the corresponding energy meter is assigned. For this purpose, correspondingly insert the 4-pole plug into the lower pin row:



   - For consumption meters, insert the 4-pole plug into the connection socket "Meter 1".
   - For feed-in meters, insert the 4-pole plug into the connection socket "Meter 2".
   - For PV production meters, insert the 4-pole plug into the connection socket "Meter 3".
   - For bidirectional meters for grid feed-in and purchased electricity, insert the connection plug of the cable for purchased electricity into the connection socket "Meter 1". Insert the connection plug of the cable for grid feed-in into the connection socket "Meter 2".
8. Connect the end of the cable to the energy meter. In the process, observe the polarity of the insulated conductors.
9. Use the stickers provided on every cable to identify which connection socket and which energy meter the cable is assigned to.
10. Write down the S0 pulses per kWh and the meter status of every energy meter. In this way, you facilitate the meter configuration in the Sunny Portal.

7.3 Connecting the Sunny Home Manager to the Router

1. Connect the network cable to the Ethernet terminal of the Sunny Home Manager.



2. Connect the other end of the network cable to the router.

7.4 Supplying the Sunny Home Manager With Voltage

7.4.1 Supplying the Sunny Home Manager With Voltage via the Plug-in Power Supply

1. Connect the DC plug of the plug-in power supply to the connection socket "Power" of the Sunny Home Manager.
2. Insert the plug-in power supply into the socket-outlet.
   ☑ The status LED of the Sunny Home Manager first glows red, then the status LED flashes red. After approx. 2 minutes, the status LED intermittently flashes green and orange. The Sunny Home Manager is connected to the Sunny Portal.
   ✖ Is the status LED not intermittently flashing green and orange?
   It is possible that the Sunny Home Manager is not correctly connected to the router.
   - Ensure that the Sunny Home Manager is correctly connected to the router (see section 7.3).

7.4.2 Supplying the Sunny Home Manager With Voltage via the Top-hat Rail Power Supply

As an alternative to the plug-in power supply, you can supply the Sunny Home Manager with voltage using a top-hat rail power supply.

Additional required material (not included in scope of delivery):

☐ Top-hat rail power supply

☐ An AC connection cable

☐ A cable for connecting the top-hat rail power supply to the Sunny Home Manager

Top-hat rail power supply requirements:

☐ Output voltage DC: 12 V (tolerance: ± 10%)

☐ Nominal current: 1.5 A

Requirements of the cable for connecting the top-hat rail power supply to the Sunny Home Manager:

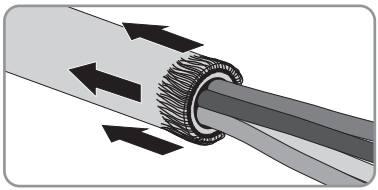
☐ Core cross-section: 0.2 mm^2 ... 1.5 mm^2

☐ The cable has at least two insulated conductors

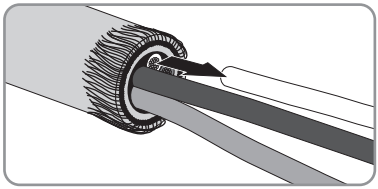
1. Mount the top-hat rail power supply on the top-hat power supply (see manual of the top-hat rail power supply).
2. Connect the cable for the Sunny Home Manager to the top-hat rail power supply (see manual of the top-hat rail power supply). For this purpose, shorten the insulated conductors not required to the cable shield.
3. Write down the color of the insulated conductors:

Terminals on the top-hat rail power supply	Insulated conductor color
DC +	
DC –	

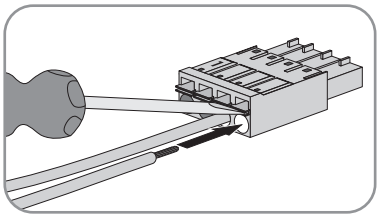
4. Remove 4 cm of the cable sleeve at the other end of the cable.
5. Shorten the cable shield to approx. 5 mm. For this purpose, transfer the surplus cable shield onto the cable sleeve.



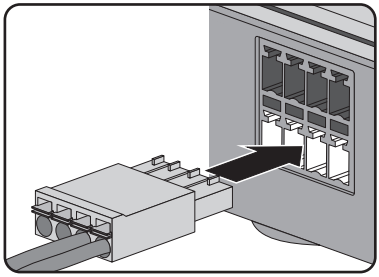
6. Shorten unused insulated conductors until flush with the cable sleeve.



7. Strip approx. 6 mm of insulation off the insulated conductors.
8. Unlock of the jacks of the 4-pole plug with a screwdriver. For this purpose, insert the DC – insulated conductors into pin 3 and insert the DC + insulated conductors into pin 4 of the 4-pole plug.



9. If no energy meter is connected to the 4-pole plug, insert the 4-pole plug into the Sunny Home Manager in the lower pin row of one of the connection sockets.



10. If an energy meter is connected to the 4-pole plug, insert the 4-pole plug into the lower pin row of the connection socket to which the corresponding energy meter is assigned (see section 7.1 "Connection Area", page 28).
11. Connect the AC connection cable to the top-hat rail power supply (see manual of the top-hat rail power supply).
12. **⚠ DANGER**

    Risk of lethal electric shock

    Lethal voltages are present at the connection location of the power distribution grid.

    - Disconnect the connection location from the power distribution grid using the separator (e.g. distribution board).

13. Connect the other end of the AC connection cable to the electricity supply.
14. Connect the connection location to the power distribution grid.

    ☑ The status LED first glows red, then the status LED flashes red. After approx. 2 minutes, the status LED intermittently flashes green and orange.

    ✖ Is the status LED not intermittently flashing green and orange?

    It is possible that the Sunny Home Manager is not correctly connected to the router.

    - Ensure that the Sunny Home Manager is correctly connected to the router (see section 7.3).

8 Commissioning

8.1 Preparing *Bluetooth* Communication

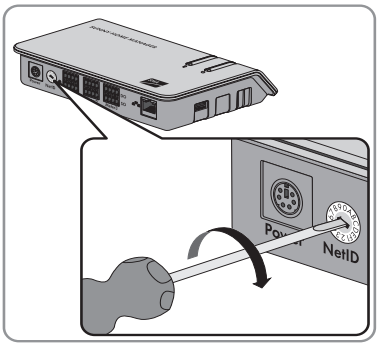
8.1.1 Configuring the NetID on the Sunny Home Manager

Requirement for configuring NetID 1

For *Bluetooth* devices, NetID 1 is preset at the factory. You may only configure NetID 1 if your *Bluetooth* PV plant consists of a maximum of one inverter and one Sunny Home Manager.

- If the PV plant consists of more *Bluetooth* devices than one inverter and one Sunny Home Manager, configure a different NetID as NetID 1.

- Use a screwdriver to turn the arrow of the rotary switch to the NetID of the PV plant (blade width of the screwdriver: 2.5 mm). For this purpose, configure a NetID from 2 to 9 or A to F.



8.1.2 Configuring the NetID on the SMA Radio-controlled Socket

Configuring the NetID for the first time

1. Insert the SMA radio-controlled socket into a socket-outlet.
   ☑ The upper horizontal LED glows red for approx. 10 seconds, then the vertical LEDs glow green for approx. 4 seconds.
2. As soon as the LED displays "0", keep tapping the touch key until the LED display shows the desired NetID.
3. To assume the NetID, wait for 5 seconds. In the process, do not tap the touch key.

Changing the NetID

Requirements:

☐ The SMA radio-controlled socket is inserted in a socket-outlet.

☐ The upper horizontal LED glows orange or green.

1. Hold the touch key down for approx. 2 seconds.
   ☑ The LED display shows the last configured NetID.
2. Keep tapping the touch key until the desired NetID is displayed.
3. To assume the NetID, wait for 5 seconds. In the process, do not tap the touch key

8.2 Establishing Connection to the Sunny Portal

Requirements:

☐ DHCP is activated on the router (see manual of the router).

☐ The Sunny Home Manager is connected to the router (see section 7.3 "Connecting the Sunny Home Manager to the Router", page 33).

☐ The Sunny Home Manager is supplied with voltage (see section 7.4 "Supplying the Sunny Home Manager With Voltage", page 34).

The Sunny Home Manager automatically establishes a connection to the Sunny Portal. As soon as the status LED intermittently flashes green and orange after approx. 2 minutes, you can register the Sunny Home Manager in the Sunny Portal (see section 8.3 "Registering in the Sunny Portal", page 39).

If the status LED continuously flashes red, the Sunny Home Manager cannot automatically establish the connection to the Sunny Portal. This is the case, for example, if there is a proxy server in your network or if your router does not support DHCP.

- If the status LED continuously flashes red or you have to manually configure the IP address in your network, use the Sunny Home Manager Assistant (see section 9.4 "Using Sunny Home Manager Assistant", page 56).

8.3 Registering in the Sunny Portal

The Sunny Portal acts as a user interface of the Sunny Home Manager. Therefore, you must register the Sunny Home Manager in the Sunny Portal.

Requirements:

☐ The status LED of the Sunny Home Manager intermittently flashes green and orange (see section 8.2 "Establishing Connection to the Sunny Portal", page 38).

☐ The same NetID is configured for all *Bluetooth* devices.

☐ The *Bluetooth* PV plant is commissioned.

Procedure:

- Start the Plant Setup Assistant.
- Register as a new user in the Sunny Portal.

  or

  Log in to the Sunny Portal as an existing user.
- Register the Sunny Home Manager plant in the Sunny Portal.
- Enter the plant password.
- Configure the energy meter.
- Enter the plant data.

Tip: If you have SMA radio-controlled sockets, insert the SMA radio-controlled sockets into the socket-outlets and configure the NetID of the PV plant (see section 8.1.2 "Configuring the NetID on the SMA Radio-controlled Socket", page 38). As a result, you can register the SMA radio-controlled socket together with the Sunny Home Manager.

Starting the Plant Setup Assistant

The Plant Setup Assistant is a step-by-step guide of the processes required for user registration and the registration of Sunny Home Manager plants in the Sunny Portal

1. Open **www.SunnyPortal.com** and select [Plant setup assistant].

   or

   Open **www.SunnyPortal.com/Register**.

   ☑ The Plant Setup Assistant opens.
2. Select [Next].

☑ The "User registration" page opens.

Registering as a new user in Sunny Portal

1. Activate the "I'm new here" field and select [Next].
2. Enter data necessary for registration.
3. Select [Next].
   ☑ You will receive an e-mail containing a link and your access credentials to Sunny Portal after a few minutes.
   ✖ You didn't receive an e-mail from Sunny Portal?
   Possibly, the e-mail was automatically redirected to your spam mail folder.
   - Check whether the e-mail was redirected to the spam mail folder.

   You may have stated a different e-mail address.
   - Check whether the e-mail was sent to another e-mail address.
   - If the other e-mail address is an unknown address, restart the Plant Setup Assistant and register as a user again.
4. Follow the link in the confirmation e-mail within 24 hours.
   ☑ Sunny Portal will confirm in a window that registration was successful.
   - Select [Next].
   - The "Identify communication product" page opens.

Registering to Sunny Portal as an existing user

Requirements:

☐ You already have one plant in Sunny Portal.

1. Select the "I am already registered in Sunny Portal" field.
2. Enter the e-mail address and Sunny Portal password in the "E-mail Address" and "Password" fields.
3. Select [Next].

☑ The "Identify communication product" page opens.

Registering a Sunny Home Manager plant in Sunny Portal

1. On the "Identify communication product" page, enter the previously noted serial number and registration ID of the Sunny Home Manager in the "Serial Number" and "Registration ID" fields.
2. Select [Identify].
   ☑ Sunny Portal searches for the Sunny Home Manager with the corresponding serial number and registration ID. The Plant Setup Assistant shows the correct Sunny Home Manager with a green tick.
   ✖ The Plant Setup Assistant cannot find any Sunny Home Managers with the entered serial number and registration ID?
   - See section 9 "Troubleshooting", page 46
3. Select [Next].
   ☑ The "Select plant" page opens.
4. Activate the "Create a new plant" field and enter a plant name (e.g. **My Sunny Home Manager plant**).
5. Select [Next].
   ☑ Sunny Home Manager searches for any available *Bluetooth* devices. After a maximum of 10 minutes the Plant Setup Assistant lists the serial number of any available *Bluetooth* devices.
   ✖ The Plant Setup Assistant is unable to establish a connection to the Sunny Home Manager and any available *Bluetooth* devices?

   or

   ✖ The Plant Setup Assistant does not list any or not all *Bluetooth* devices in your PV plant?
   - Select [Refresh]. If the Plant Setup Assistant continues not to list any or not all *Bluetooth* devices, see Troubleshooting (see section 9.3 "Error During Registration to Sunny Portal", page 51).

   or

   ✖ The Plant Setup Assistant lists own but also third-party devices?
   - See Troubleshooting (see section 9.3 "Error During Registration to Sunny Portal", page 51).
6. Activate the selection box of the devices you would like to add to the Sunny Home Manager plant. Tip: You can identify devices using the previously noted serial number.
7. Select [Add] to add *Bluetooth* devices to the Sunny Home Manager plant immediately.
   ☑ A window prompting the plant password opens.

8. Select [Skip forward] to add *Bluetooth* devices to the Sunny Home Manager plant at a later time and continue with registration. Tip: You can add *Bluetooth* devices as new devices to the Sunny Home Manager plant after registration (see "Sunny Home Manager in Sunny Portal" user manual).

   ☑ The "Meter configuration" window opens.

   • Configure the energy meters.

Entering the plant password

All devices with identical password and NetID form a plant. For this reason, a password used for all devices in a plant is called a plant password.

Requirements:

☐ The *Bluetooth* LED on the inverter or *Bluetooth* Piggy-Back lights up blue.

☐ A uniform plant password or the standard password 1111 is set on all *Bluetooth* devices.

1. Enter the plant password in the window to enter the plant password:
   • Enter a new plant password if the standard password 1111 is still set on all devices.
   • If a uniform password has already been set on all devices, enter this password as plant password.
   • If a uniform password was not set on all devices, set a uniform "installer" password using the Sunny Explorer software (see Sunny Explorer Help) and enter this password in the Plant Setup Assistant as plant password.
2. Select [Connect].

   ☑ The password is transferred to the devices. Devices are shown with a green tick: ✔.

   ✖ Are some devices shown with a warning symbol: ⚠ ?

   Sunny Home Manager cannot access the devices. You might have entered an invalid plant password or the system was unable to establish a connection to the devices.

   • Activate the selection box for affected devices.
   • Select [Add].
   • Enter the plant password again.
   • If devices continue to be shown with a warning symbol, see Troubleshooting (see section 9.3 "Error During Registration to Sunny Portal", page 51).

Configuring energy meters

1. If energy meters have been connected to the Sunny Home Manager, select the energy meter type connected to the respective meter input in the drop-down lists "Meter input 1", "Meter input 2", "Meter input 3":
   - Select **D0** if the connected energy meter has a D0 interface.
   - If the connected energy meter has a D0 interface and it is a bidirectional meter, select "Meter input 1" **D0** and activate the **Bidirectional meter (consumption and feed-in)** field.

   ☑ The "Meter input 2" area is grayed out.
   - If the connected energy meter has an S0 interface, select **S0** and enter the previously noted pulses and meter readings of the energy meter in the "S0 pulses/kWh" and "Meter reading" fields.
2. If no energy meters are connected to the Sunny Home Manager, select **no meter** each for "Meter input 1", "Meter input 2" and "Meter input 3" in the drop-down lists.
3. Select [Next].

   ☑ The "Extended plant properties" page opens.

Entering PV plant data

1. Enter the plant data.
2. Select [Next].

   ☑ The Plant Setup Assistant shows a summary of your entered data.
3. Select [Finish].

   ☑ Sunny Portal confirms successful registration of the Sunny Home Manager plant in a window.
4. Select [To to plant] to change to the Sunny Home Manager plant.

   ☑ The Sunny Home Manager plant opens.
5. Enter the plant features (see user manual in "Sunny Home Manager in Sunny Portal“).

8.4 Configuring the Operating Mode of the SMA Radio-controlled Socket

Requirements:

☐ The SMA radio-controlled socket is inserted into the socket-outlet.

☐ The upper horizontal LED glows orange or green.

You can configure the operating mode of the SMA radio-controlled socket via the touch key of the SMA radio-controlled socket or via the Sunny Portal (see user manual "Sunny Home Manager in the Sunny Portal").

Operating Mode	Explanation
"Automatic"	Control the SMA radio-controlled socket using the Sunny Home Manager. Depending on the current control command of the Sunny Home Manager, the SMA radio-controlled socket is either switched on or switched off in this mode. • Switched on: The connected load can draw power. • Switched off: The connected load cannot draw any power.
"Manually switched on"	The SMA radio-controlled socket is switched on. The connected load can draw power. The SMA radio-controlled socket is not controlled by the Sunny Home Manager.
"Manually switched off"	The SMA radio-controlled socket is switched off. The connected load cannot draw any power. The SMA radio-controlled socket is not controlled by the Sunny Home Manager.

1. **Requirement for "Automatic" mode**

   You can only set "Automatic" mode if you have configured the SMA radio-controlled socket for the connected load in the Sunny Portal.

   - If the SMA radio-controlled socket was not registered together with the Sunny Home Manager in the Sunny Portal, add the SMA radio-controlled socket to the plant as a new device (see user manual "Sunny Home Manager in the Sunny Portal").

2. Keep tapping the touch key until the upper horizontal LED displays the desired operating mode:

Operating Mode	LED Status
"Manually switched on"	Glows green
"Automatic"	Off
"Manually switched off"	Glows orange

3. To assume the operating mode, wait approx. 1 second. In the process, do not press the touch key.

   ☑ After approx. 2 seconds, the SMA radio-controlled socket audibly switches to the selected operating mode.

9 Troubleshooting

9.1 Error in the Sunny Home Manager

9.1.1 States of all LEDs

LED Status	Cause and Correction
Off	The Sunny Home Manager is not supplied with voltage. **Corrective measures:** • Supply the Sunny Home Manager with voltage (see section 7.4).

9.1.2 States of the Status LED

LED Status	Cause and Correction
Glows red	The system starts. **Corrective measures:** • Do not disconnect the Sunny Home Manager from the voltage supply.
	If the status persists: Error. **Corrective measures:** • Disconnect the Sunny Home Manager from the voltage supply and then supply it with voltage once again (see section 7.4). • If the status continues to persist, contact the SMA Service Line.
Flashes red	The Sunny Home Manager cannot establish a connection to the Sunny Portal. It is possible that there is a proxy server in your network or DHCP is not activated in your router. **Corrective measures:** • Use the Sunny Home Manager Assistant (see section 9.4).
	The Sunny Home Manager cannot establish a connection to the Sunny Portal. It is possible that the Sunny Home Manager is not correctly connected to the router. **Corrective measures:** • Ensure that the Sunny Home Manager is correctly connected to the router (see section 7.3). • If the Sunny Home Manager is correctly connected to the router and the status LED continues to flash red, completely reset the Sunny Home Manager (see section 9.6).

LED Status	Cause and Correction
Flashing green and orange intermittently	The Sunny Home Manager is connected to the Sunny Portal, but is not yet registered in the Sunny Portal. **Corrective measures:** Register the Sunny Home Manager in the Sunny Portal (see section 8.3).
Flashes green	The Sunny Home Manager is connected to the devices of the PV plant and the Sunny Portal. There is an "Error" type event present in at least one device or at least one device is not connected to the Sunny Home Manager. **Corrective measures:** • Call up the error in the plant log book of the Sunny Portal (see user manual "Sunny Home Manager in the Sunny Portal"). • Read the meaning of the error in the manual of the affected device.
Glows orange	The Sunny Home Manager has not been connected to the Sunny Portal for at least 10 minutes. There are no new events in the cache of the Sunny Home Manager. **Corrective measures:** • If the status persists, check the connection status with the Sunny Home Manager Assistant (see section 9.4 "Using Sunny Home Manager Assistant", page 56).

LED Status	Cause and Correction

Flashing red and orange intermittently	The Sunny Home Manager has not been connected to the Sunny Portal for at least 10 minutes.
	There is an "Error" type event present in at least one device or at least one device is not connected to the Sunny Home Manager.
	The event and the data read out cannot be sent to the Sunny Portal. The event and the data are cached in the Sunny Home Manager.
	Corrective measures:
	• Ensure that the Sunny Home Manager is correctly connected to the router (see section 7.3).
	• Check whether the internet connection is functioning:
	  • In the browser window, enter e.g. **www.SMA.de/en** and confirm with the [Enter] key.
	  • If the internet connection is continuously impaired, ensure that the router is functioning correctly. If necessary, contact the internet service provider and read out the device errors present on the inverter display (see manual of the inverter).
	• When the Sunny Home Manager is reconnected to the Sunny Portal, call up the event in the plant log book of the Sunny Portal (see the user manual of the Sunny Portal for Sunny Home Manager).

9.1.3 States of the *Bluetooth* LED

LED Status	Cause and Correction
Flashes blue	The *Bluetooth* connection to the devices of the PV plant is critical. **Corrective measures:** • If possible, select a different mounting location and check the connection. • If no other mounting location is possible, use an SMA *Bluetooth* repeater or an SMA radio-controlled socket. As a result, you can extend the wireless range of your *Bluetooth* network.
Off	There is no *Bluetooth* connection to the devices of the PV plant. **Corrective measures:** • Commission the SMA *Bluetooth* devices. • For inverters with *Bluetooth* Piggy-Back: Wait until the inverters switch on. It is possible that the same NetID is not configured on the Sunny Home Manager as with the devices of the PV plant. **Corrective measures:** • Ensure that the same NetID is configured on the Sunny Home Manager and the devices of the PV plant (see section 8.1.1 "Configuring the NetID on the Sunny Home Manager", page 37). There may be more than one additional master in your *Bluetooth* network (e.g. Sunny Beam and computer with Sunny Explorer). Therefore, the Sunny Home Manager cannot establish a connection to the *Bluetooth* devices. **Corrective measures:** • Together with the Sunny Home Manager, use a maximum of one additional master in the *Bluetooth* network.

9.2 Error in the SMA Radio-controlled Socket

States of the lower horizontal LED

LED Status	Cause and Correction
Flashes blue	The *Bluetooth* connection to the Sunny Home Manager is critical. **Corrective measures:** • If possible, select a different mounting location. • If no other mounting location is possible, use an SMA *Bluetooth* Repeater or an additional SMA radio-controlled socket. As a result, you can extend the wireless range of your *Bluetooth* network.
Off	There is no *Bluetooth* connection between the SMA radio-controlled socket and the Sunny Home Manager. **Corrective measures:** • Ensure that the Sunny Home Manager is supplied with voltage (see section 7.4). • Ensure that the same NetID is configured on the SMA radio-controlled socket and the Sunny Home Manager (see section 8.1.2 "Configuring the NetID on the SMA Radio-controlled Socket", page 38). • If possible, select a different mounting location. • If no other mounting location is possible, use an SMA *Bluetooth* Repeater or an additional SMA radio-controlled socket. As a result, you can extend the wireless range of your *Bluetooth* network.

9.3 Error During Registration to Sunny Portal

Problem	Cause and Correction
The Plant Setup Assistant cannot establish a connection to the Sunny Home Manager.	Possibly Sunny Home Manager is not correctly connected to the router. **or** It is possible that the Sunny Home Manager is not being supplied with voltage. In this case, all LEDs of the Sunny Home Manager are off. **Corrective measures:** • Ensure that the Sunny Home Manager has been correctly connected to the router (see section 7.3). • Ensure that the Sunny Home Manager is supplied with voltage (see section7.4 "Supplying the Sunny Home Manager With Voltage", page 34). • Contact the SMA Service Line if the Sunny Home Manager has been correctly connected to the router and is connected to the mains but all LEDs remain off.

Problem	Cause and Correction
The Plant Setup Assistant does not list any or not all *Bluetooth* devices in your PV plant.	Possibly some devices are set to an incorrect NetID of the PV plant. **Corrective measures:** • Ensure the NetID of the plant is set on all devices.
	The wireless connection of several devices may be disturbed by ambient conditions. **Corrective measures:** • Ensure that the connection quality of *Bluetooth* devices is at minimum "good" (see *Bluetooth* device user manual). • If the connection quality is not at minimum "good", use SMA *Bluetooth* Repeater or SMA radio-controlled socket. This enables you to extend the radio range of the *Bluetooth* network.
	Inverters with *Bluetooth* Piggy-Back switch off during the night. For this reason, the Sunny Home Manager cannot establish a connection to these inverters during this time. **Corrective measures:** • Select [Skip forward] and continue with registration. After registration, add devices to the plant as new devices when there is sufficient irradiation (see "Sunny Home Manager in Sunny Portal" user manual).
	Possibly the devices in your PV plant are not in operation. For this reason, Sunny Home Manager cannot establish a connection to these devices. **Corrective measures:** • Commission the devices.

Problem	Cause and Correction
	Insufficient transmitting power of the inverter with *Bluetooth* communication interface. **Corrective measures:** • Use SMA *Bluetooth* Repeater or SMA radio-controlled socket. This enables you to extend the radio range of the *Bluetooth* network.
	Insufficient transmitting power of the inverter with SMA *Bluetooth* Piggy-Back Plus. **Corrective measures:** • Use "ANTEXTKIT25-10" antenna extension add-on.
	Sunny Home Manager is too far from your plant or the *Bluetooth* connection is interrupted. The cause of the interference could be walls or ceilings that excessively weaken the waves used for wireless transmission. **Corrective measures:** • Mount Sunny Home Manager nearer to a device in your plant. If this is not possible, use SMA *Bluetooth* Repeater, SMA *Bluetooth* Repeater Outdoor or SMA radio-controlled socket with *Bluetooth*. As a result, the dead zone is closed.
The Plant Setup Assistant lists own and third-party devices.	A different *Bluetooth* plant within radio range of the Sunny Home Manager uses the same NetID as your *Bluetooth* plant. **Corrective measures:** • Determine a free NetID for your plant using Sunny Explorer (see Sunny Explorer Help). • Adjust the determined NetID in all devices.
The Plant Setup Assistant cannot find a Sunny Home Manager with the serial number and registration ID entered.	Possibly you entered serial number and/or registration ID incorrectly. **Corrective measures:** • Ensure your input is correct.
	It is possible that the registration procedure was initiated at an earlier time but was not completed. **Corrective measures:** • Perform a complete reset of the Sunny Home Manager (see section 9.6).

Problem	Cause and Correction
	Possibly Sunny Home Manager is not correctly connected to the router. **Corrective measures:** • Ensure that the Sunny Home Manager has been correctly connected to the router (see section 7.3).
	DHCP is possibly not activated on your router or there is a proxy server in your network. For this reason, Sunny Home Manager cannot establish a connection to the Sunny Portal. **Corrective measures:** • Establish the connection to the Sunny Portal using the Sunny Home Manager Assistant (see section 9.4 "Using Sunny Home Manager Assistant", page 56).
	Sunny Home Manager has already been assigned to a plant with your e-mail address in Sunny Portal. **Corrective measures:** • Delete the Sunny Home Manager from the plant (see user manual of the Sunny Portal for Sunny Home Manager). **or** • Re-register the Sunny Home Manager using the Plant Setup Assistant (see section 9.7 "Reassigning the Sunny Home Manager Plant After Resetting the Sunny Home Manager", page 58).
	Sunny Home Manager has been assigned to a different plant in Sunny Portal, e.g. if you bought the Sunny Home Manager as a used product. **Corrective measures:** • If possible, contact previous owners and ask them to delete the Sunny Home Manager plant in the Sunny Portal. **or** • Contact the SMA Service Line.

Problem	Cause and Correction
Some devices are shown with an exclamation mark in the Plant Setup Assistant after having entered the plant password.	The devices with exclamation marks are inverters with *Bluetooth* Piggy-Back. These inverters switch off in darkness. For this reason, Sunny Home Manager cannot access the inverters at this time. **Corrective measures:** 1. Select [Skip forward] in the Plant Setup Assistant and finish registration without selecting inverters. 2. Once there is daylight and the inverters are on, log on to the Sunny Portal and add the inverters to the Sunny Home Manager plant as new devices using the Configuration Wizard (see user manual "Sunny Home Manager in Sunny Portal").
	A different electrically qualified person password is set on devices with exclamation marks. **Corrective measures:** 1. Select [Skip forward] in the Plant Setup Assistant and finish registration without selecting the devices 2. Set a uniform electrically qualified person password for all devices using the Sunny Explorer software (see Sunny Explorer Help). 3. If you do not know the password set on each device, apply for a Personal Unlocking Key (PUK) for each device from SMA Service Line. 4. Use Sunny Explorer to enable each device with the corresponding PUK. Subsequently set a uniform installer password in all devices (see Sunny Explorer Help). 5. Log in to Sunny Portal and add the devices to the Sunny Home Manager plant as new devices using the Configuration Wizard (see Sunny Portal user manual for Sunny Home Manager).

9.4 Using Sunny Home Manager Assistant

The Sunny Home Manager Assistant helps you to configure the Sunny Home Manager for your network if the Sunny Home Manager does not automatically connect with the Sunny Portal.

In addition, you can use the Sunny Home Manager Assistant to display the latest connection status to the Sunny Portal, the network settings and the connected *Bluetooth* devices, and save as a log file. In the event of a service, the SMA Service Line can evaluate this log file and read out problems.

1. Using a network cable, connect the computer to the router to which the Sunny Home Manager is connected.
2. In the download area on www.SMA.de/en, download the Sunny Home Manager Assistant for the operating system of your computer.

   or

   Insert the provided CD into the drive of your computer.
3. Start the Sunny Home Manager Assistant by double-clicking on the file name.
4. Follow the Sunny Home Manager Assistant instructions.

9.5 Error in the Sunny Home Manager Assistant

Problem	Cause and Correction
The Sunny Home Manager Assistant does not detect a Sunny Home Manager	The computer with the Sunny Home Manager Assistant is not connected to the router to which the Sunny Home Manager is connected. **Corrective measures:** • Connect the computer with the Sunny Home Manager Assistant to the router to which the Sunny Home Manager is connected.

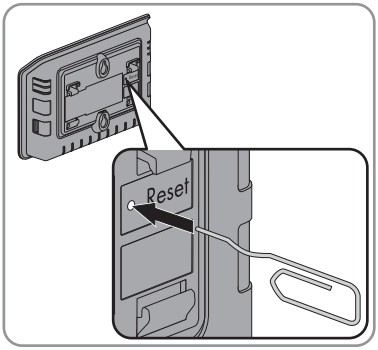
9.6 Resetting the Sunny Home Manager

The reset button is positioned in a small hole on the bottom of the Sunny Home Manager.

Depending on how long you hold down the reset button, the Sunny Home Manager is partially or completely reset.

Duration	Result	Status of the status LED and the energy meter LED
1 to 5 seconds	☑ The network settings of the Sunny Home Manager are reset.	Flashing orange intermittently
5 to 10 seconds	The Sunny Home Manger is completely reset: ☑ All settings of the Sunny Home Manager are deleted. ☑ All cached plant data (energy values, events, etc.) are deleted. ☑ The Sunny Home Manager redetects the *Bluetooth* devices in range. ☑ The Sunny Home Manager must be registered once more in the Sunny Portal (see section 9.7 "Reassigning the Sunny Home Manager Plant After Resetting the Sunny Home Manager", page 58).	Flashing red intermittently

- Press the reset button with a sharp object (e.g. paper clip) and hold until the desired reset result has been achieved:
  - To reset the network settings of the Sunny Home Manager, press the reset button until the status LED and the energy consumption LED intermittently flash orange.
  - To completely reset the Sunny Home Manager, press the reset button until the status LED and the energy consumption LED intermittently flash red.



9.7 Reassigning the Sunny Home Manager Plant After Resetting the Sunny Home Manager

Once you have completely reset the Sunny Home Manager (see section 9.6), you must reassign the Sunny Home Manager to your Sunny Home Manager plant in the Sunny Portal. Otherwise, the Sunny Portal will not assume any data from the Sunny Home Manager.

You have the following options for reassigning the Sunny Home Manager to your Sunny Home Manager plant:

- Reassign the Sunny Home Manager via the Plant Setup Assistant.

  or

- Reassign the Sunny Home Manager via the Sunny Portal access (see user manual "Sunny Home Manager in the Sunny Portal").

Reassigning the Sunny Home Manager of the Sunny Home Manager plant using the Plant Setup Assistant

1. Open **www.SunnyPortal.com** and select [Plant setup assistant].

   or

   Open **www.SunnyPortal.com/Register**.

   ☑ The Plant Setup Assistant opens.
2. Select [Next].

   ☑ The "User registration" page opens.
3. Activate the **I am already registered in the Sunny Portal** field.
4. Enter the e-mail address and the Sunny Portal password in the "E-mail Address" and "Password" fields.
5. Select [Next].

   ☑ The "Identify communication product" page opens.
6. Enter the serial number and Sunny Home Manager registration ID in the "Serial Number" and "Registration ID" fields.

   Reading out the serial number and registration ID

   You can read out the registration ID and serial number in the following areas:

   - On the type label on the rear of the Sunny Home Manager
   - On the cover of the supplied CD

7. Select [Identify].
   ☑ Sunny Portal checks whether the entered serial number and registration ID corresponds to the connected Sunny Home Manager.
   ✖ The Plant Setup Assistant cannot find a Sunny Home Manager with the stated serial number and registration ID?
   - See Troubleshooting (see section 9 "Troubleshooting", page 46).
8. Select [Next].
   ☑ The Plant Setup Assistant lists all Sunny Home Manager plants.
9. Activate the field of the Sunny Home Manager plant to which you wish to assign the Sunny Home Manager.
10. Select [Next].
    ☑ The "Device replacement summary" page opens.
11. Select [Finish].

9.8 Resetting the SMA Radio-controlled Socket to Default Settings

You must reset the SMA radio-controlled socket to default settings in the following cases:

- You wish to operate the SMA radio-controlled socket in a different plant.
- You wish to reset the measured values of the SMA radio-controlled socket.

1. Unplug the SMA radio-controlled socket from the socket-outlet and re-insert it into the socket-outlet.
   ☑ The upper horizontal LED glows red for approx. 10 seconds.
2. As soon as the horizontal LEDs glow green, press and hold the touch key for 5 seconds. For this purpose, do not release the key until the upper horizontal LED glows red.
   ☑ The NetID is reset to "0".
   ☑ The measured values are reset.
   ☑ The plant password is reset to the default password 1111.

10 Decommissioning

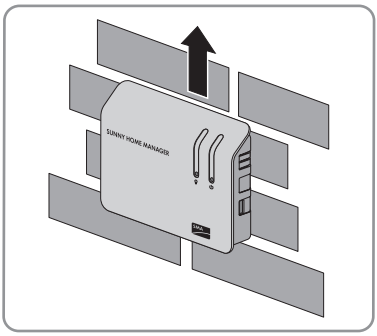
10.1 Disassembling the Sunny Home Manager

1. If the Sunny Home Manager is supplied with voltage via the plug-in power supply:
   - Unplug the plug-in power supply from the socket-outlet.
   - Unplug the DC plug of the plug-in power supply from the terminal "Power".
2. If the Sunny Home Manager is supplied with voltage via a top-hat rail power supply:

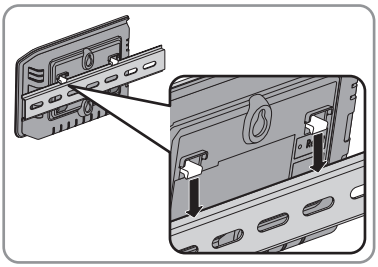
   ⚠ DANGER

   Risk of lethal electric shock

   Lethal voltages are present at the connection location of the power distribution grid.
   - Disconnect the connection location from the power distribution grid using the separator (e.g. distribution board).
   - Unplug the connection plug of the top-hat rail power supply on the Sunny Home Manager from the connection socket.
3. Unplug the connection plugs of the energy meters from the connection sockets.
4. Unplug the network cable from the Ethernet terminal of the Sunny Home Manager.
5. Unplug the other end of the network cable from the router.
6. If the Sunny Home Manager is mounted on the wall, push the Sunny Home Manager upward and remove it from the wall.



7. If the Sunny Home Manager is mounted on a top-hat rail, remove the Sunny Home Manager from the top-hat rail:
   - Push the Sunny Home Manager downward. In the process, pivot the Sunny Home Manager with the lower edge facing forward and remove from the top-hat rail.



10.2 Packing the Sunny Home Manager/SMA Radio-controlled Socket for Dispatch

- Pack the device. For this purpose, use the original packaging or packaging suitable for the weight and dimension of the device (see section 11 "Technical Data", page 62).

10.3 Disposal of the Sunny Home Manager/SMA Radio-controlled Socket

- Dispose of the device according to the disposal regulations for electronic waste that apply at the installation site.

  or

- Send the device to SMA Solar Technology AG at your own expense (see section 14 "Contact", page 69). When doing so, label the packaging "**ZUR ENTSORGUNG**" ("FOR DISPOSAL").

11 Technical Data

11.1 Sunny Home Manager

General data

Status display	LEDs
Maximum length of the cable to energy meters with S0 interface	30 m
Maximum length of the cable to energy meters with D0 interface	15 m
Certified countries	Australia, Belgium, Germany, France, Italy, Greece, Great Britain, Canada, Luxembourg, Portugal, Spain, Czech Republic, Austria, Switzerland, USA

Mechanical data

Width x height x depth	170 mm x 124.5 mm x 41.5 mm
Weight	220 g

Voltage supply

Voltage supply	Plug-in power supply, top-hat rail power supply
DC input voltage	12 V
Maximum typical power consumption	6 W
Maximum power consumption	14.3 W

Terminals

Ethernet*	RJ45
Number of 2x4-pole Combicon jacks for energy meters	3
Number of USB jacks**	2

* Data rate 10 Mbit per second or 100 Mbit per second

** Currently without function.

Ambient conditions in operation

Ambient temperature*	– 25 °C ... +60 °C
Relative humidity**	5 % ... 95 %
Degree of protection***	IP20
Maximum height above MSL	2 000 m

* Sunny Home Manager at temperatures below 0 °C or exceeding 40 °C, do not use the plug-in power supply included in the delivery (see Section 11.3 "Plug-in Power Supplies", page 65). Requirements of the plug-in power supply: 12 V DC, nominal current: 1.5 A.

** Non-condensing

*** according to IEC 60529

Communication interface to other devices

SMA devices	*Bluetooth*
Computer	Ethernet
Sunny Portal	Ethernet

Maximum communication range

Bluetooth *	100 m
Ethernet	100 m

* Maximum free-field communication range

Memory

Internal memory	32 MB

Number of devices

Maximum total number of SMA devices	16
Maximum number of SMA inverters	12
Maximum number of SMA radio-controlled sockets	10

11.2 SMA Radio-controlled Socket

General data

Status display	LEDs
Certified countries	Belgium, Germany, France, Greece, Great Britain, Italy, Canada, Luxembourg, Austria, Portugal, Spain, Czech Republic, USA, Switzerland

Mechanical data

Width x height x depth	118 mm x 76 mm x 56 mm
Weight	156 g

Voltage supply

Voltage	100 V ... 240 V
Frequency	50/60 Hz
Maximum current	16 A
Minimum power consumption	0.25 W
Maximum power consumption	1.5 W
Maximum switching power with resistive load	3 680 W
Maximum switching power with lamp load	600 W
Maximum switching power with inductive load with a displacement power factor of $\cos \varphi > 0.65$	1 200 VA

Ambient conditions in operation

Ambient temperature	– 5°C ... +65°C
Relative humidity*	5% ... 95%
Degree of protection (IP)**	IP20
Maximum height above MSL	3 000 m

* Non-condensing

** According to IEC 60529

Ambient conditions during transport/storage

Ambient temperature	– 25°C ... +80°C
Relative humidity*	5% ... 95%
Maximum height above MSL	3 000 m

* Non-condensing

Communication interface to other devices

Sunny Home Manager	*Bluetooth*

Maximum communication range

Bluetooth *	100 m

* Maximum free-field communication range

11.3 Plug-in Power Supplies

11.3.1 TaiyTech, TYT251200200UV/3000M

Mechanical data

Width x height x depth	92.0 mm x 58.0 mm x 41.4 mm
Weight	244 g

Voltage supply

Voltage	100 V AC ... 240 V AC
Frequency	50/60 Hz
Maximum current	0.85 A

Ambient conditions in operation

Ambient temperature	0°C ... + 45°C

11.3.2 TaiyTech, TYT251200200EU/3000M

Mechanical data

Width x height x depth	92.0 mm x 90.6 mm x 36.0 mm
Weight	190 g

Voltage supply

Voltage	100 V AC ... 240 V AC
Frequency	50/60 Hz
Maximum current	0.85 A

Ambient conditions in operation

Ambient temperature	0°C ... + 45°C

11.3.3 CINCON, TRG30R 120

Mechanical dimensions

Width x height x depth	107.8 mm x 57.5 mm x 33.5 mm
Weight	300 g

Voltage supply

Voltage	100 V ... 240 V AC
Frequency	50 / 60 Hz
Maximum current	0.8 A

Ambient conditions in operation

Ambient temperature	0°C ... + 40°C

12 Accessories

Designation	Brief description	SMA order number
Reading head	Cable with optical reading head and 4-pole plug for energy meters with D0 interface	HM-D0-METERADAPTER
SMA radio-controlled socket	SMA Radio-controlled socket with *Bluetooth* Wireless Technology	BT-SOCKET-10

13 Software Licenses

The licenses for the software modules used can be found on the CD provided.

14 Contact

If you have technical problems concerning our products, contact the SMA Service Line. We need the following data in order to provide you with the necessary assistance:

- Serial number and firmware version of the Sunny Home Manager
- Serial number and firmware version of the SMA radio-controlled socket
- Name of the Sunny Home Manager plant
- Energy meter type
- Reading head type

SMA Solar Technology AG

Sonnenallee 1

34266 Niestetal, Germany

www.SMA.de

SMA Service Line

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Communication:	+49 561 9522 2499
Fax:	+49 561 9522 4699
E-Mail:	ServiceLine@SMA.de

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